

Replacement Sheet

APPROVED	O.G. FIG.
	CLASS SUBCLASS
BY	DRAFTSMAN

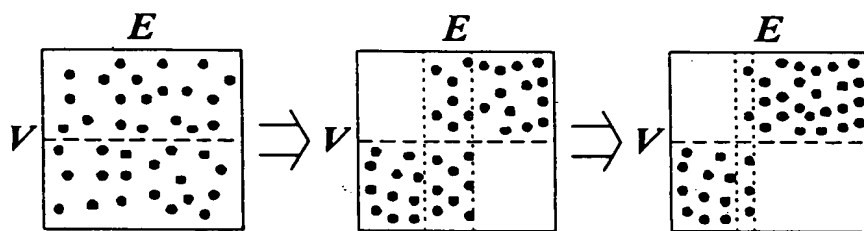


FIG. 1

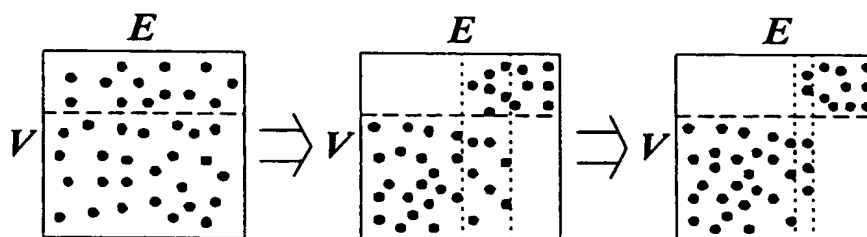


FIG. 2



Replacement Sheet

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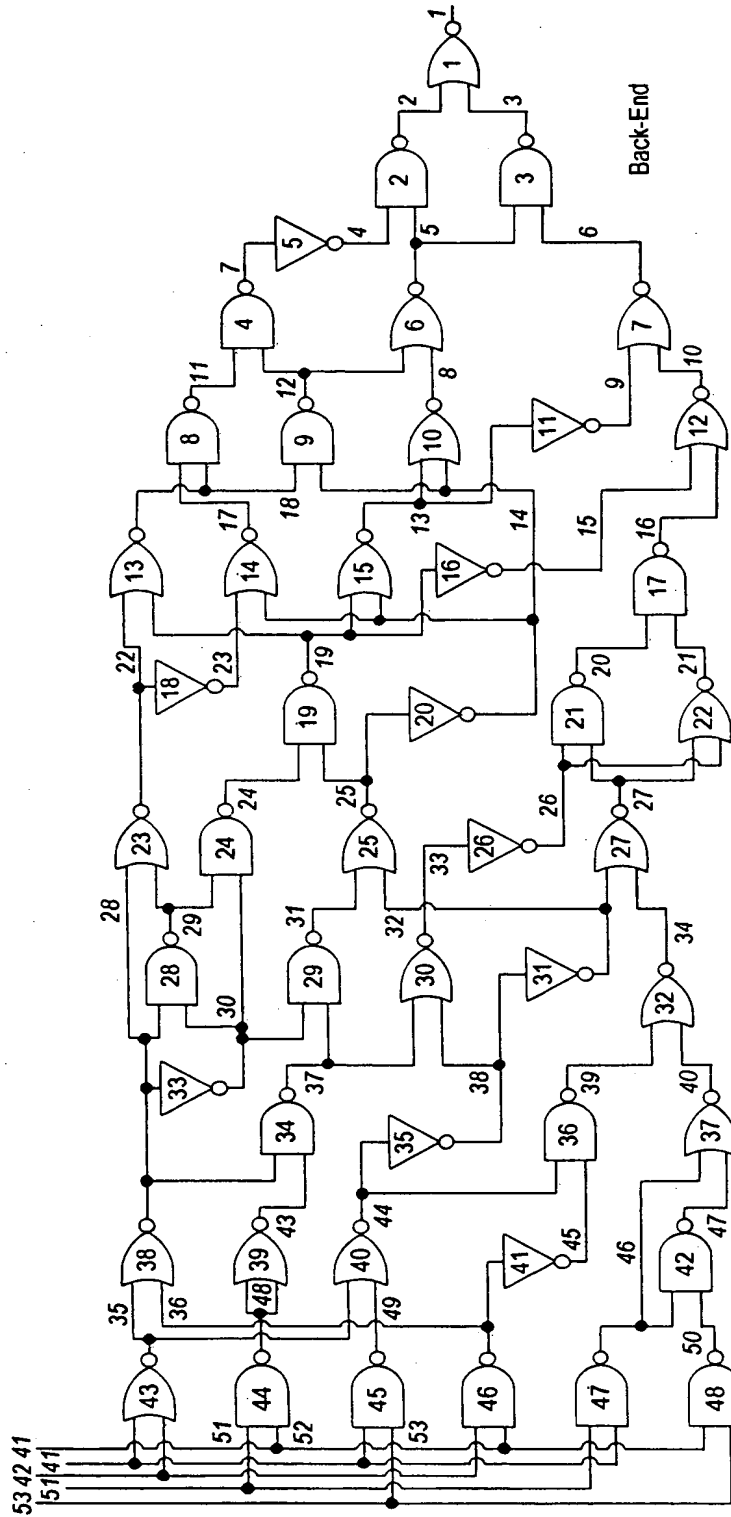


FIG. 3

Front-End

Back-End



Replacement Sheet

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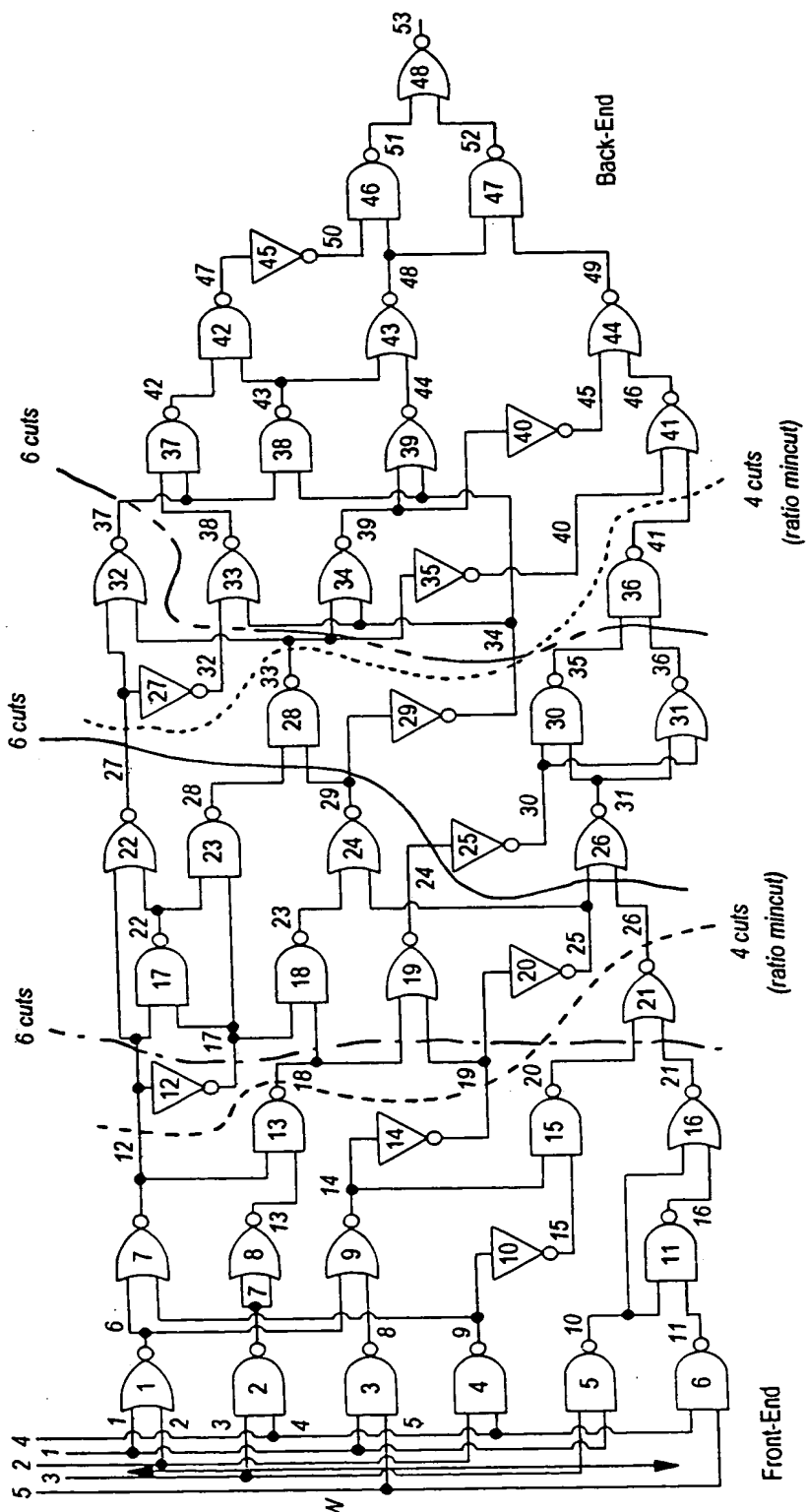


FIG. 4

Replacement Sheet



APPROVED BY DRAFTSMAN	O.G. FIG.
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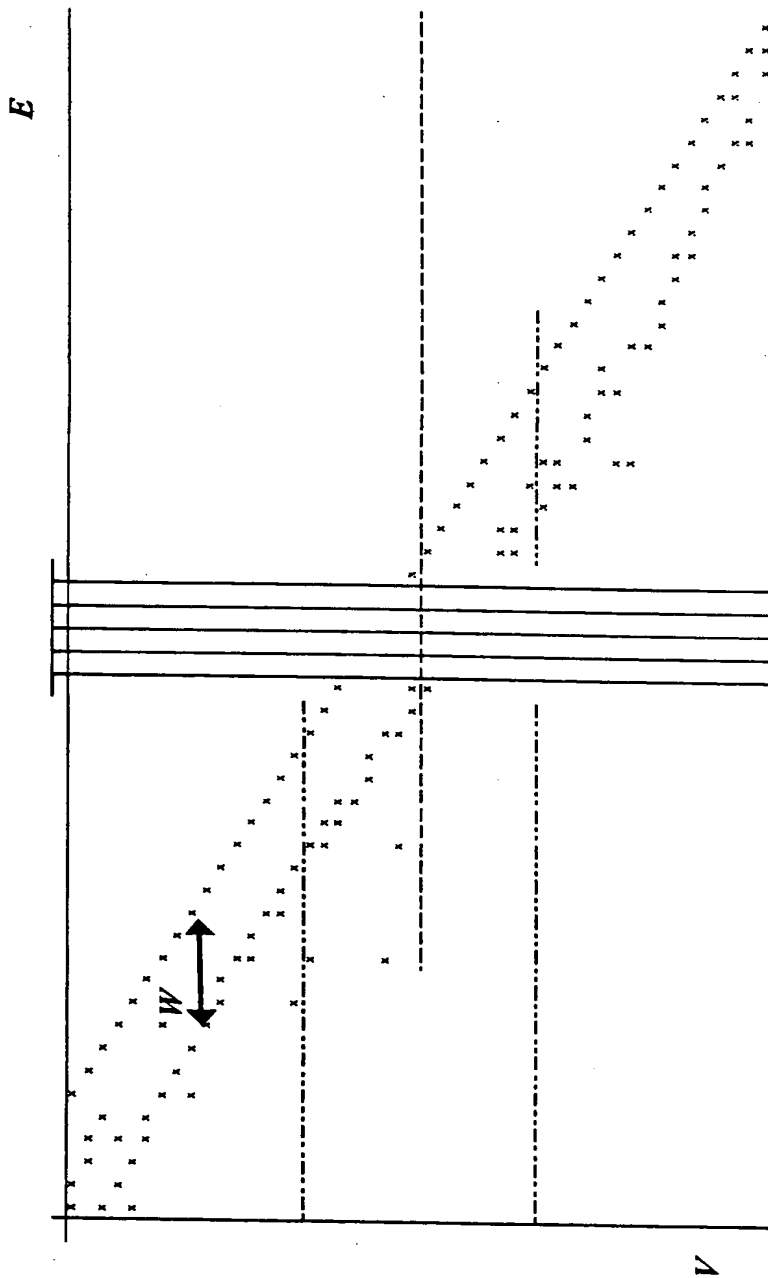
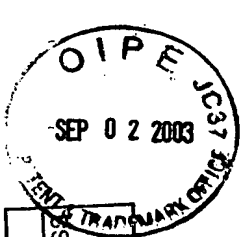


FIG. 5

Replacement Sheet



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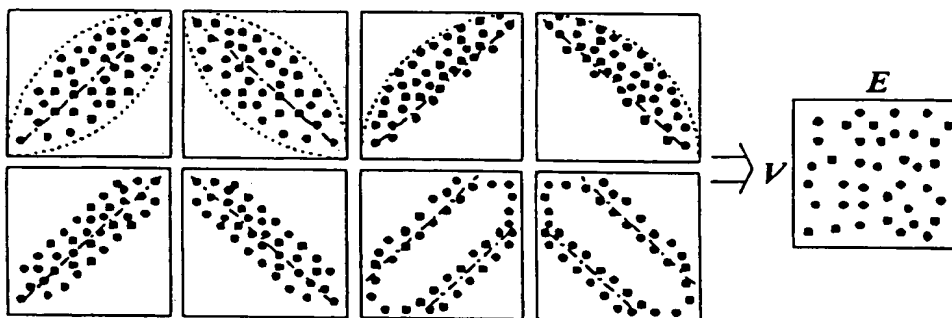


FIG. 6



Replacement Sheet

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```
#include <stdlib.h>
#include <stdio.h>
#include <time.h>

#define Required_Num 48
int A[Required_Num], B[Required_Num], C[Required_Num];

int main(void)
{
    int i, j, m, n, seed, non_used;
    time_t t;

    for(i=0; i< Required_Num; i++)
    { A[i] =0; B[i] =i+1; } /* For initialize */

    seed = (unsigned) time(&t); /* srand((unsigned) time(&t)); */
    srand( seed );

    printf("\nSeed %u, random numbers from 1 to %d\n", seed, Required_Num);
    for(i= Required_Num-1; i>=0; i--)
    {
        int k;
        k = (rand() % Required_Num);
        printf("%2d\t", k+1);
        if( B[k] != 0) { A[i] = k+1; B[k] = 0; }
    }
    printf("\nArray A... Non-repeated generated numbers (from back-end):\n");
    for(i=0; i< Required_Num; i++) printf("%2d\t", A[i]);

    printf("\nArray B... Not yet used numbers\n");
    i=0;
    for(i=0; i< Required_Num; i++)
    {
        if(B[i]!=0)
        { C[j]=B[i];
          printf("%2d\t", B[i]);
          j++;
        }
    }
    non_used=j;
    printf("\nInsert Sequence of "
           "Non-yet-used Numbers...\n");
    m=n=0;
    for(i=0; i<Required_Num; i++)
    {
        if(A[i]==0)
        {
            if( (j%2) == 0 )
            { A[i] = C[non_used-1-m]; m++;
            }
            else
            { A[i] = C[n]; n++;
            }
            printf("%2d\t", A[i]);
            j--;
        }
    }
    printf("\nAfter Modified...\n");
    for(i=0; i< Required_Num; i++)
        printf("%2d\t", A[i]);

    return 0;
}
```

SOME OUTPUT RESULTS:

```
Seed 35986, random numbers from 1 to 48
38 45 42 5 31 44 47 4 22 23
9 36 27 7 32 5 12 8 29 11
6 11 19 6 13 9 41 3 40 9
43 23 32 36 1 25 26 24 15 32
2 26 47 30 42 17 28 29
Array A... Non-repeated generated numbers (from back-end):
0 28 17 0 30 0 0 2 0 15
24 26 25 1 0 0 0 43 0 40
3 41 0 13 0 19 0 6 11 29
8 12 0 32 7 27 36 9 23 22
4 47 44 31 5 42 45 38
Array B... Not yet used numbers
10 14 16 18 20 21 33 34 35 37
39 46 48
Insert Sequence of Non-yet-used Numbers...
10 48 14 46 16 39 18 37 20 35
21 34 33
After Modified...
10 28 17 48 30 14 46 2 16 15
24 26 25 1 39 18 37 43 20 40
8 41 33 13 21 19 34 6 11 29
4 47 44 31 5 42 45 38
Seed 3350, random numbers from 1 to 48
44 13 35 29 43 22 48 37 39 41
6 39 37 4 4 46 31 38 15 27
29 40 41 17 38 32 14 22 7 8
32 23 18 27 5 11 26 1 47 44
30 28 44 19 37 34 48 34
Array A... Non-repeated generated numbers (from back-end):
0 0 34 0 19 0 28 30 0 47
1 26 11 5 0 18 23 0 8 7
0 14 32 0 17 0 40 0 27 15
39 31 46 0 4 0 0 6 41 39
37 48 22 43 29 35 13 44
Array B... Not yet used numbers
2 3 9 10 12 16 20 21 24 25
33 36 42 45
Insert Sequence of Non-yet-used Numbers...
45 2 42 3 36 9 33 10 25 12
24 16 21 20
After Modified...
45 2 42 3 36 9 33 10 25 12
10 14 32 25 17 12 40 24 27 15
38 31 46 16 4 21 20 6 41 39
37 48 22 43 29 35 13 44
```

FIG. 7

Replacement Sheet

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APPROVED	O.G. FIG.
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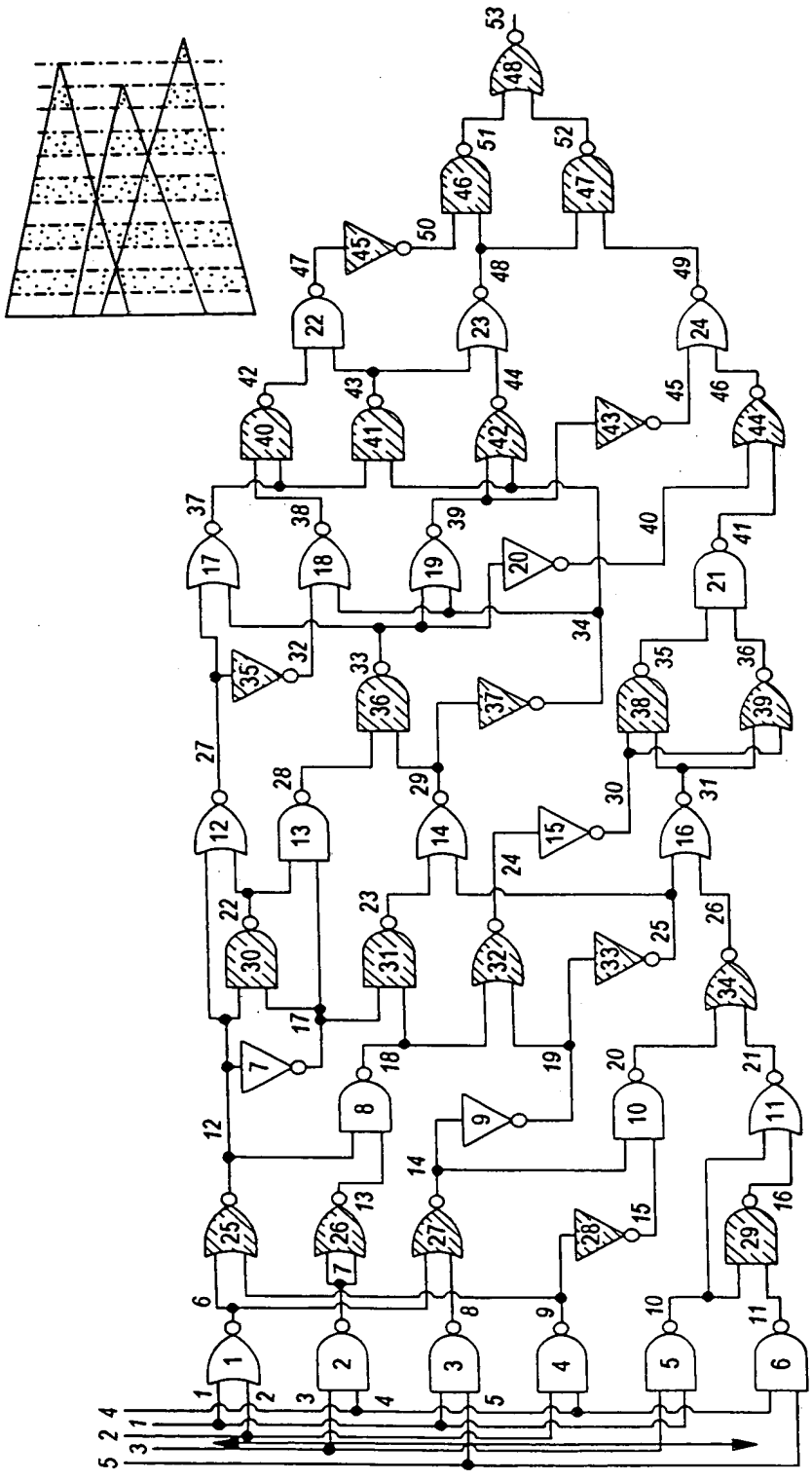


FIG. 8A



Replacement Sheet

APPROVED	O.G. FIG.
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Seed 34731, random numbers from 1 to 24									
1	10	21	8	17	6	4	7	22	15
9	9	12	13	12	19	6	4	10	21
23	11	4	24						
Array A... Non-repeated generated numbers (from back-end)									
24	0	11	23	0	0	0	0	19	0
13	12	0	9	15	22	7	4	6	17
8	21	10	1						
Array B... Not yet used numbers									
2	3	5	14	16	18	20			
Insert Sequence of Non-yet-used Numbers...									
2	20	3	18	5	16	14			
After Modified...									
24	2	11	23	20	3	18	5	19	16
13	12	14	9	15	22	7	4	6	17
8	21	10	1						

Seed 34797, random numbers from 25 to 48									
33	41	28	40	33	45	36	48	44	39
27	47	35	37	30	31	44	33	46	25
35	28	30	46						
Array A... Non-repeated generated numbers (from back-end)									
0	0	0	0	25	46	0	0	31	30
37	35	47	27	39	44	48	36	45	0
40	28	41	33						
Array B... Not yet used numbers									
26	29	32	34	38	42	43			
Insert Sequence of Non-yet-used Numbers...									
26	43	29	42	32	38	34			
After Modified...									
26	43	29	42	25	46	32	38	31	30
37	35	47	27	39	44	48	36	45	34
40	28	41	33						

FIG. 8B

Replacement Sheet



APPROVED	O.G. FIG.
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0. Initializemapping (V, E) pairs to V-E plain,
confirm the (V, E) pair distributed condition under nearly Max-cut reservation
and may randomize the node number order.

1. Phase One: basic four steps.

- | | | | | | |
|-----|-----|-----|-----|-----|-----|
| E | N | E | N | E | N |
| (B) | (R) | (T) | (L) | (B) | (R) |
- (B): Bottom-side base
(R): Right-side base
(T): Top-side base
(L): Left-side base

2. Phase Two Begins: different additional steps can be choiced.

2A.

N	E	N
(R)	(T)	(L)

 • • •

2B.

N	E	N	E	N
(R)	(T)	(L)	(R)	(B)

N	E	N	E	N
(R)	(T)	(L)	(R)	(B)

 • • •

2C.

N	E	N	E	N	E	N	E	N
(R)	(T)	(L)	(B)	(T)	(L)	(B)	(R)	(T)

N	E	N	E	N	E	N	E	N
(R)	(T)	(L)	(B)	(R)	(L)	(B)	(R)	(T)

 • • •

2D.

E	N	E	N
(B)	(R)	(T)	(L)

E	N	E	N
(B)	(R)	(T)	(L)

 • • •

2E. Some other recurring orders.
2F. Some other clustering techniques.

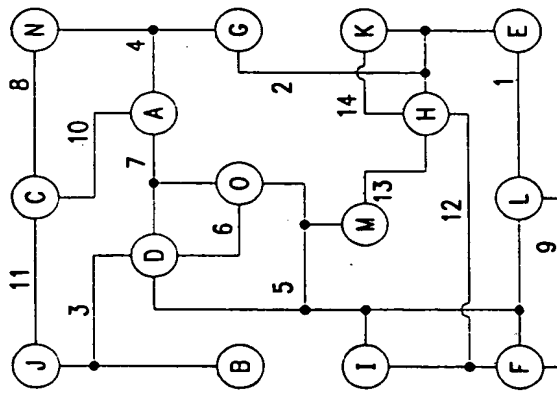
When every sort step completed, record nodes set, and if node set no more change, halt the procedures.

FIG. 9



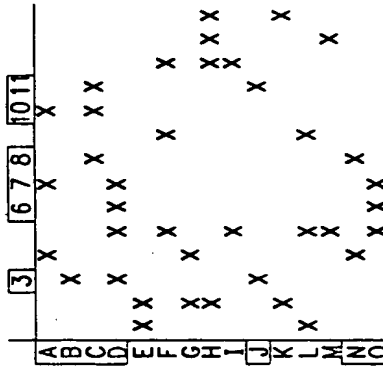
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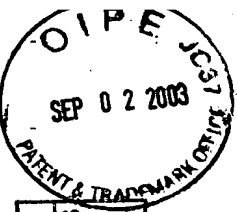
A 14 edges/15 nodes example.

initialize
mapping
to
V-E plain



Confirm the distributed condition.

FIG. 10A



Replacement Sheet

APPROVED	O.G. FIG.
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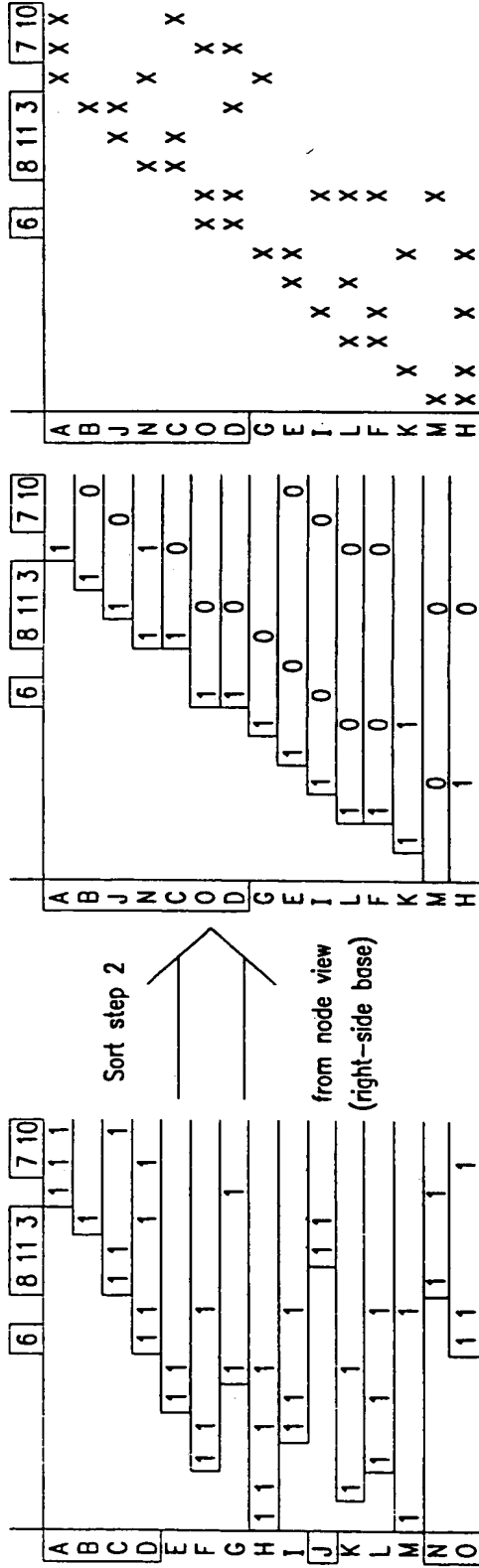


FIG. 10C



Replacement Sheet

APPROVED	O.G. FIG.
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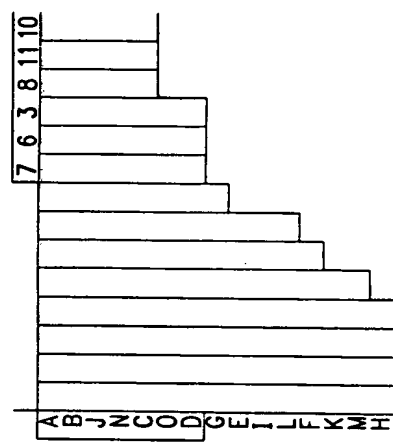
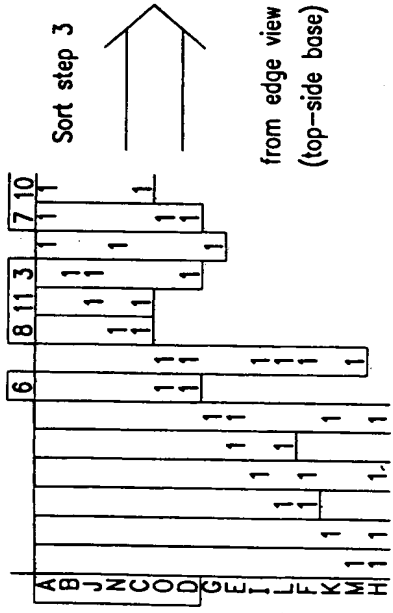


FIG. 10D

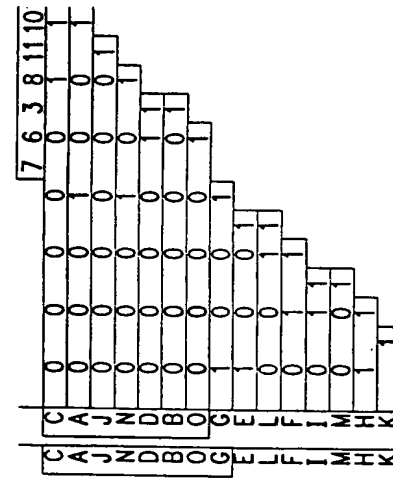
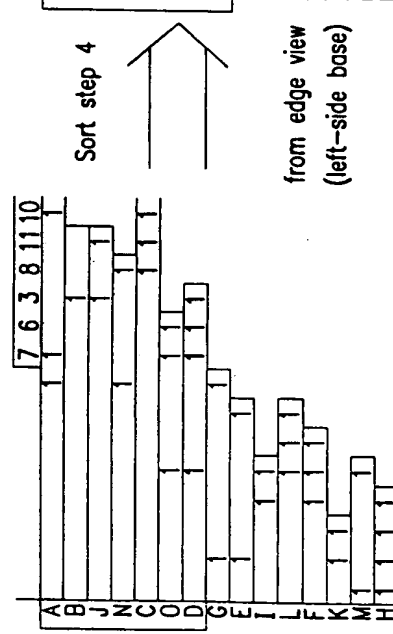
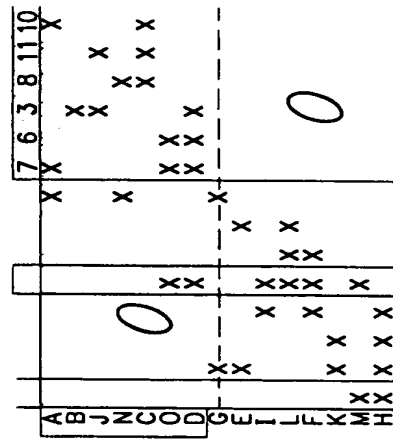
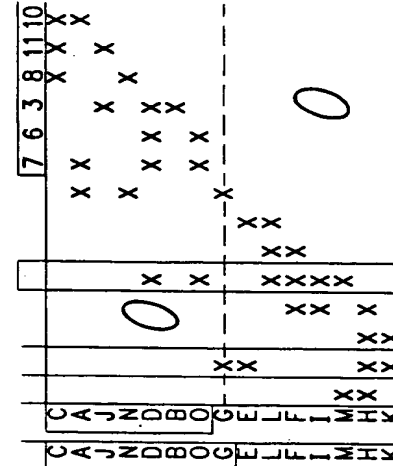


FIG. 10E



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APPROVED	O.G. FIG.
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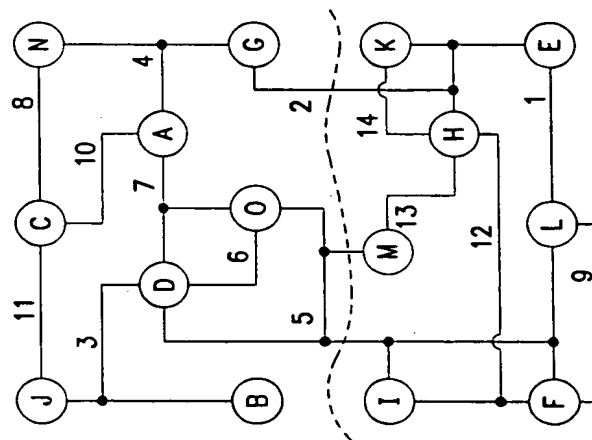
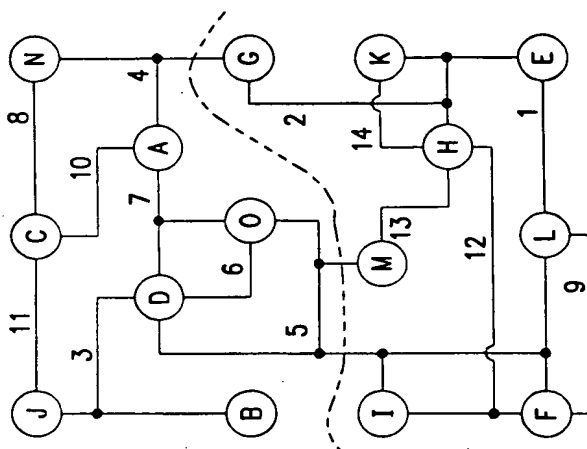


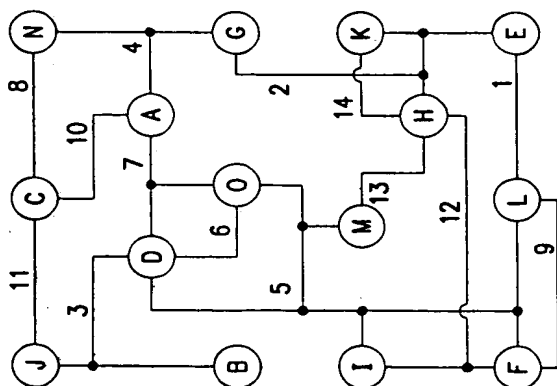
FIG. 10F

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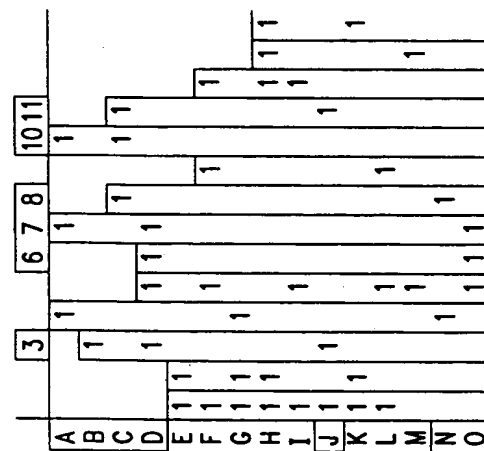
Replacement Sheet

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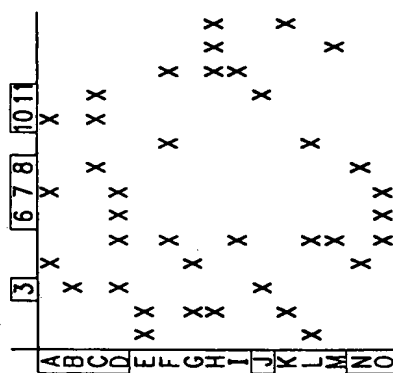
A 14 edges/15 nodes example.

initialize
mapping
to
V-E plain



Sort step 1

from edge view
(bottom-side base)



Confirm the distributed condition.

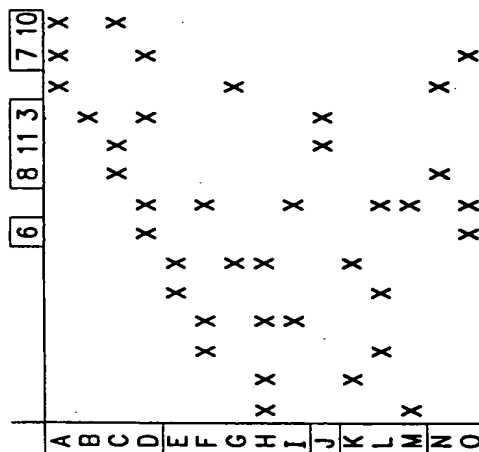
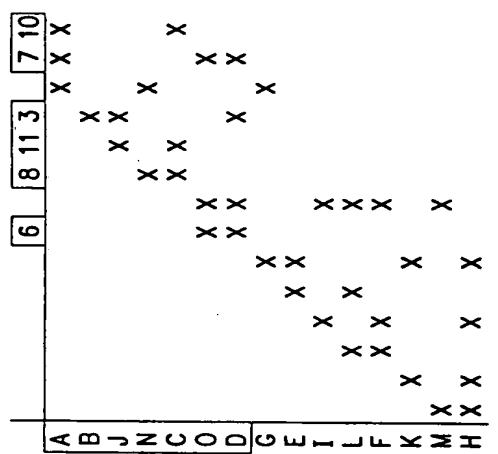


FIG. 11A

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Sort step 2
 from node view
 (right-side base)

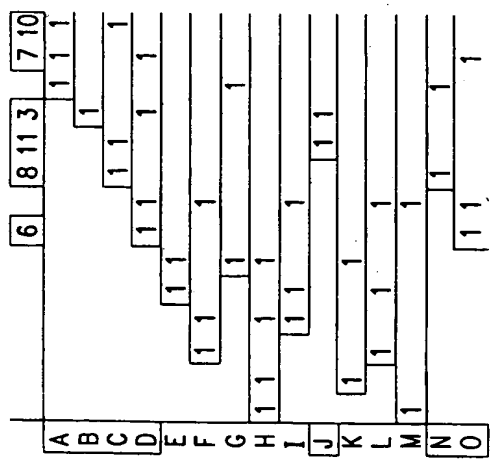
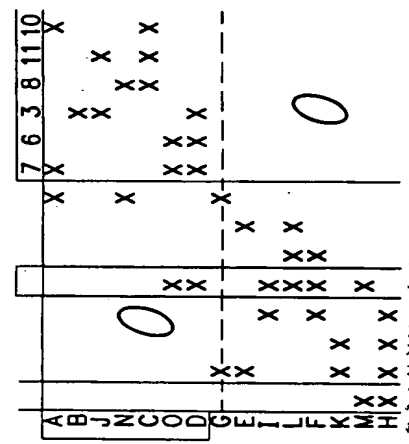
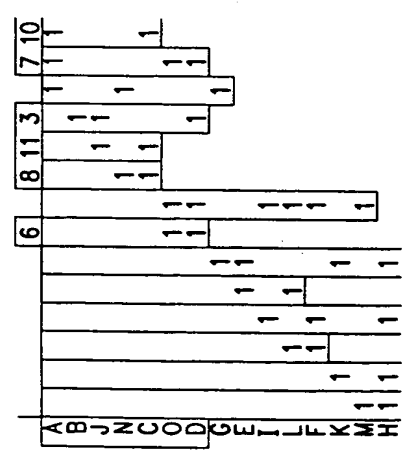
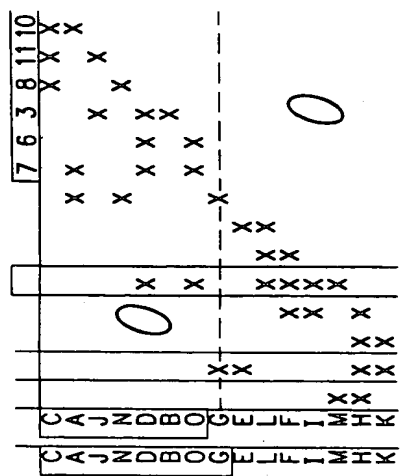


FIG. 11B

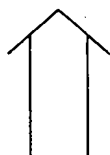


Sort step 3
 from edge view
 (top-side base)





Sort step 4



from edge view
(left-side base)

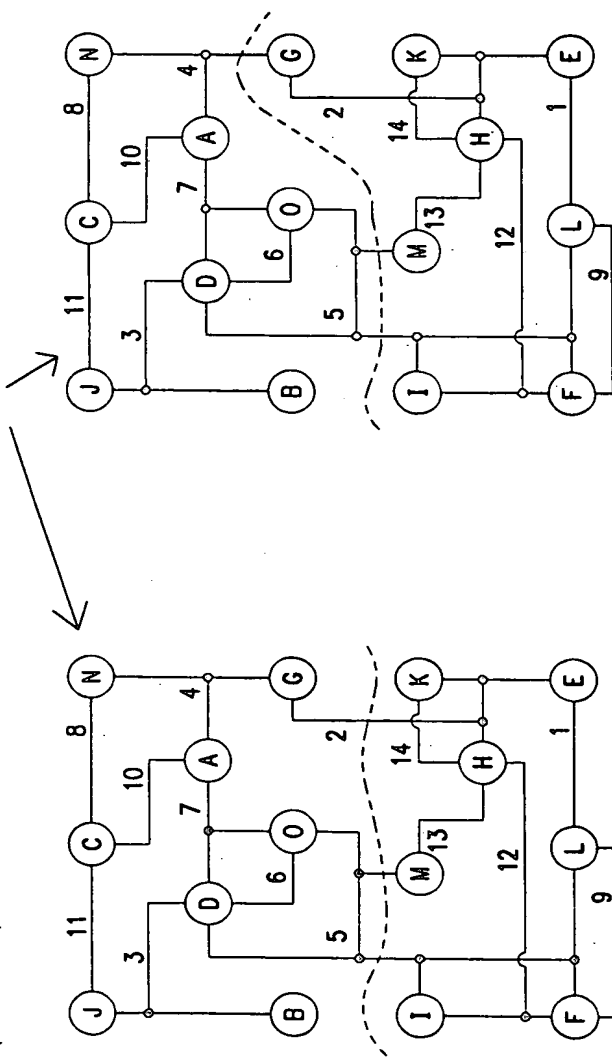
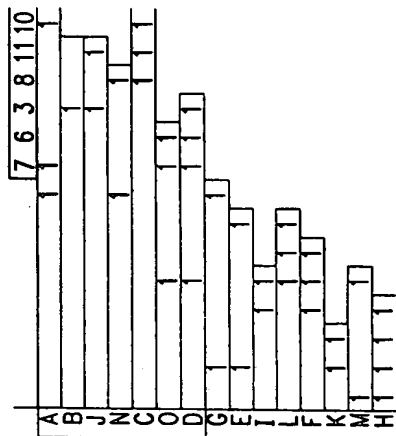
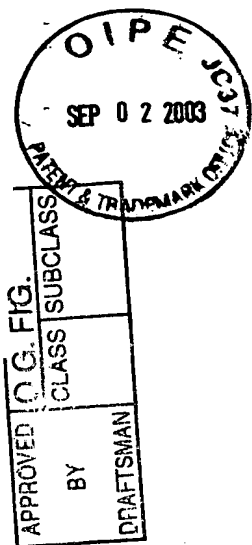


FIG. 11C



Replacement Sheet

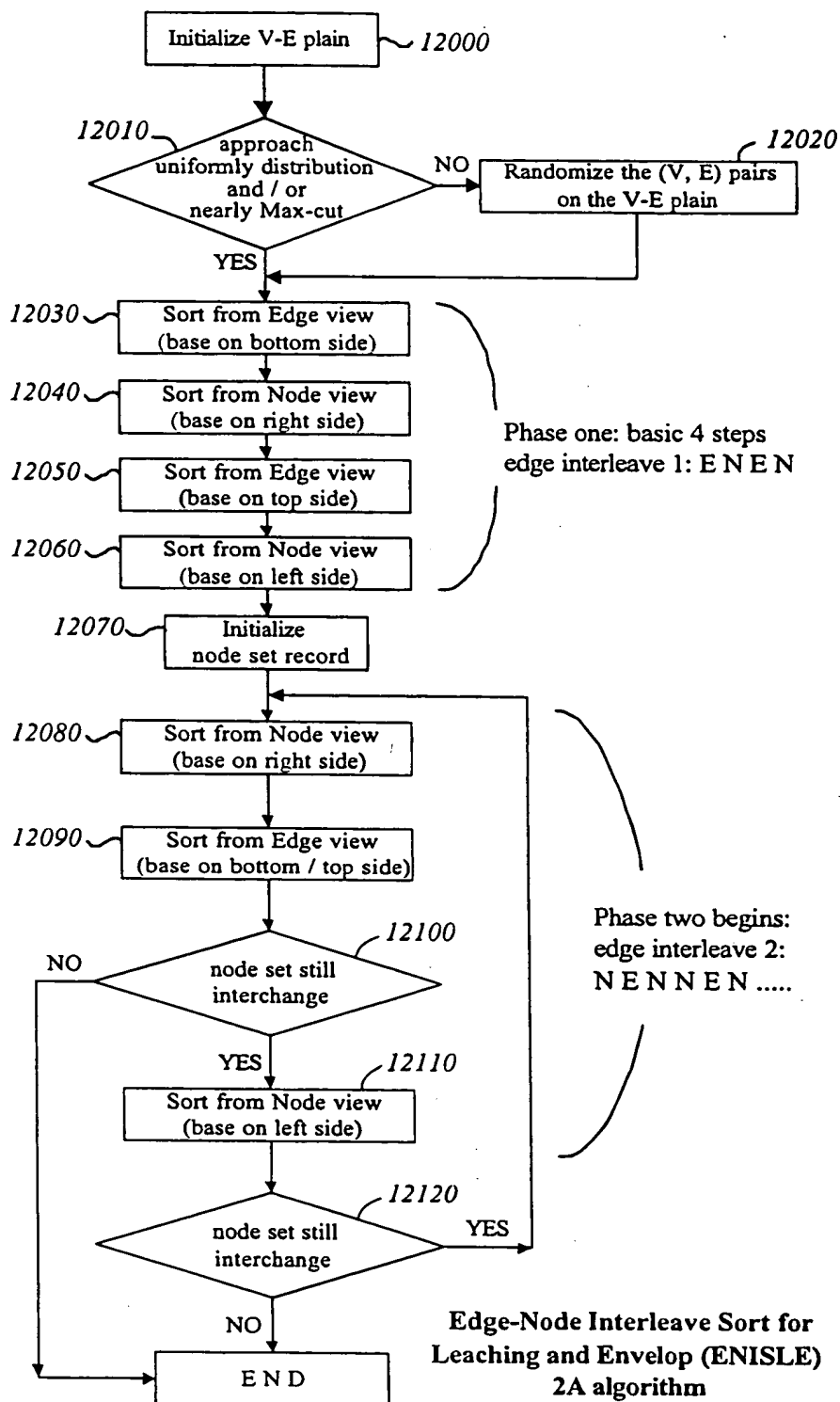


FIG. 12



Replacement Sheet

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O.G. FIG. CLASS SUBCLASS

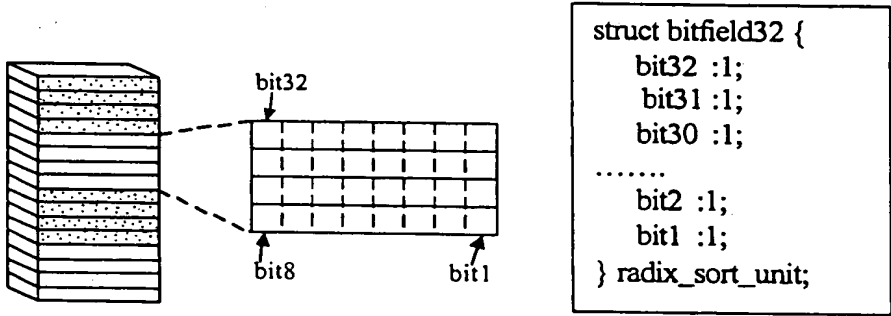
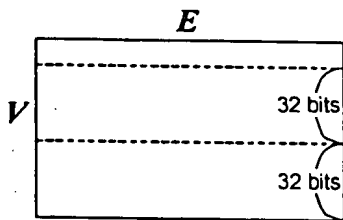
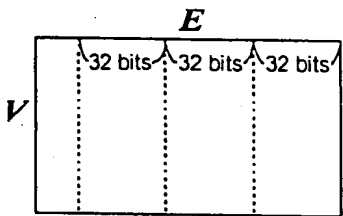


FIG. 13



Radix Sorting (LSD) Example:	
232, 321, 213, 231, 111, 112, 132, 123, 221	
1S	321, 231, 111, 221
2S	232, 112, 132
3S	213, 123
321, 231, 111, 221, 232, 112, 132, 213, 123	
10S	111, 112, 213
20S	321, 221, 123
30S	231, 232, 132
111, 112, 213, 321, 221, 123, 231, 232, 132	
100S	111, 112, 123, 132
200S	213, 221, 231, 232
300S	321
Output: 111, 112, 123, 132, 213, 221, 231, 232, 321	

FIG. 14



Replacement Sheet

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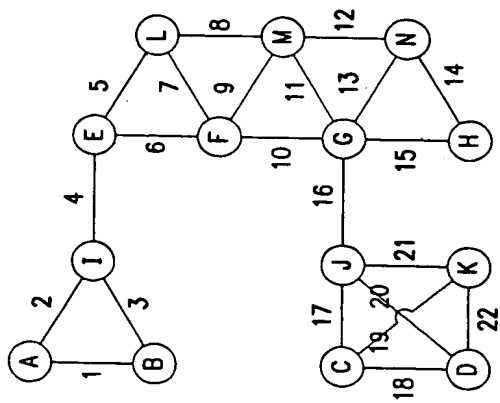
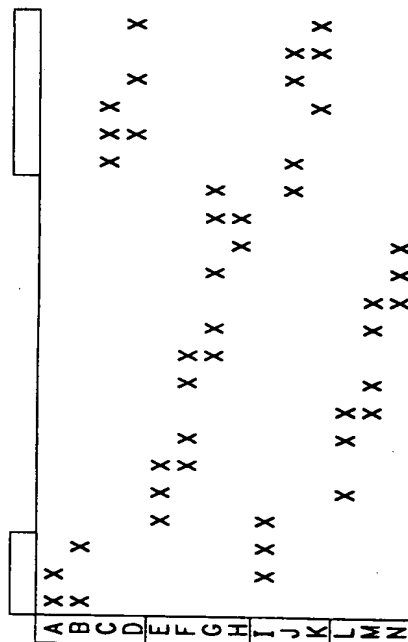


FIG. 15A



Initialize the V-E Plain.

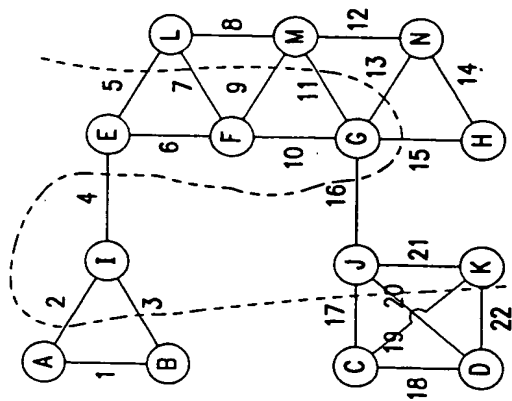
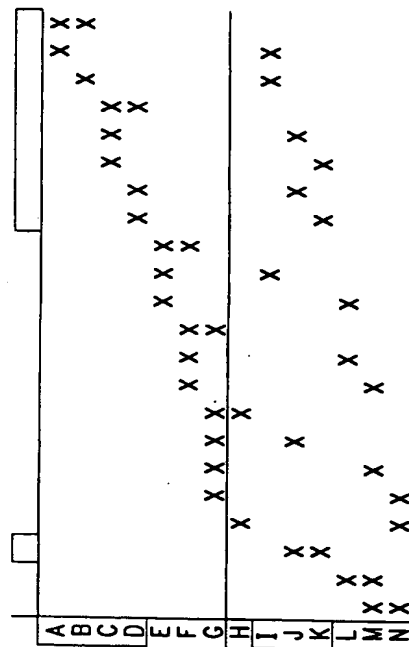


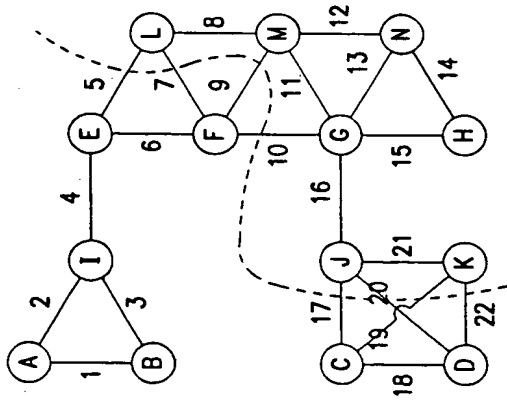
FIG. 15B



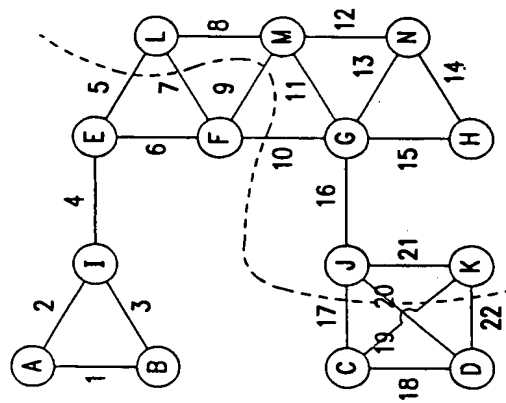
Step 1, cut numbers: 14.

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Step 2, cut numbers: 8.

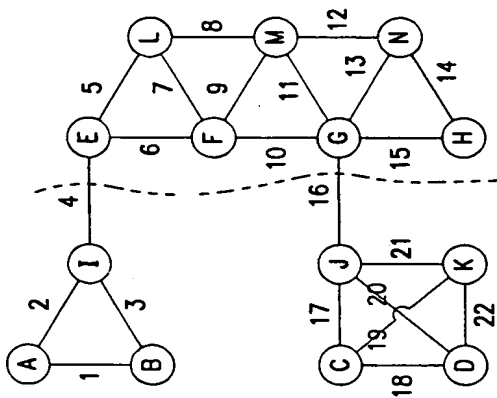


Step 3, 4, cut numbers: 8.

FIG. 15C

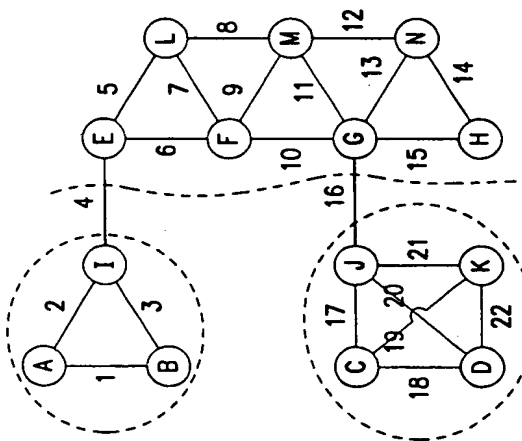
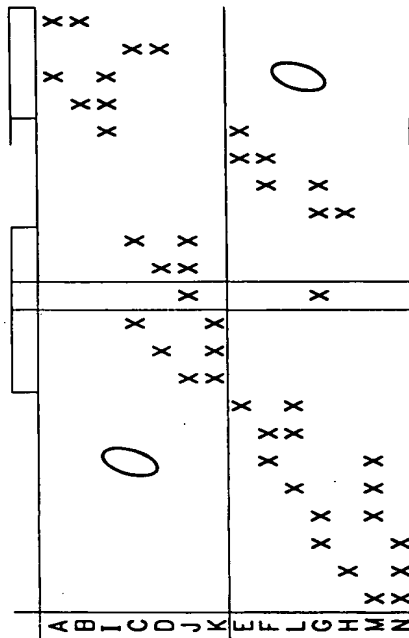
FIG. 15D

Replacement Sheet



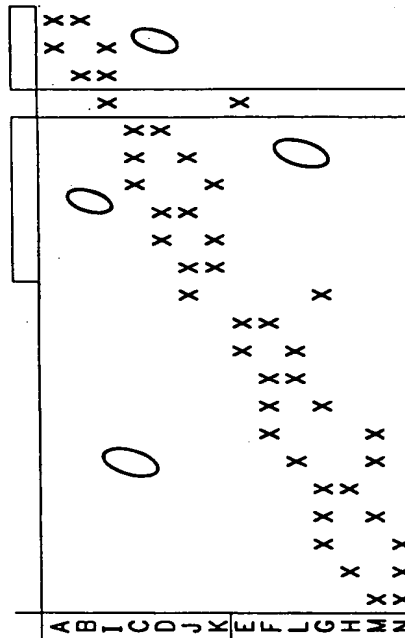
Step 5, cut numbers: 2.

FIG. 15E



Step 6, cut numbers: 2.

FIG. 15F





Replacement Sheet

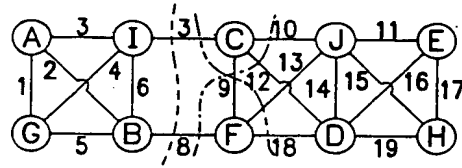


FIG. 16

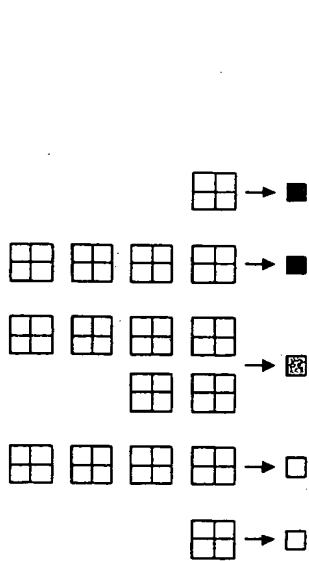


FIG. 17A

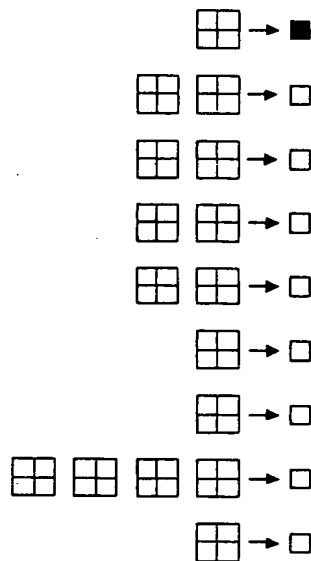


FIG. 17B

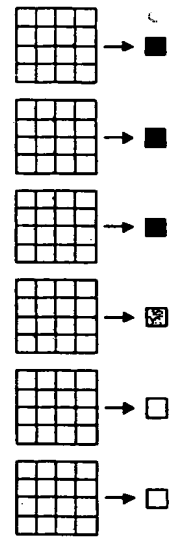


FIG. 17C

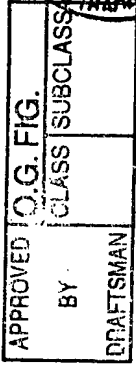
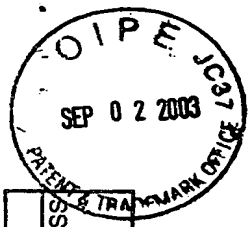
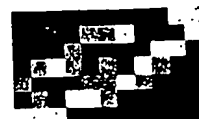
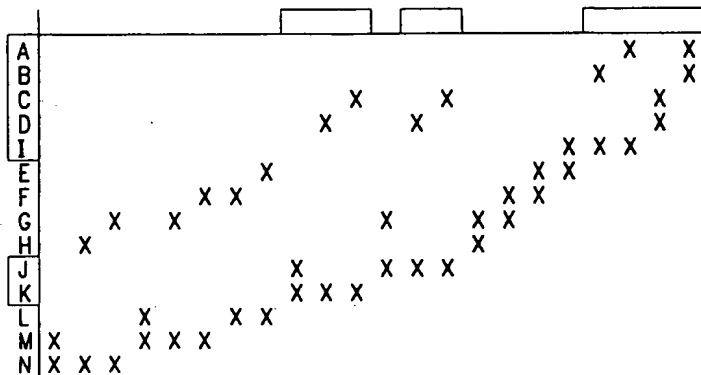


FIG. 18A

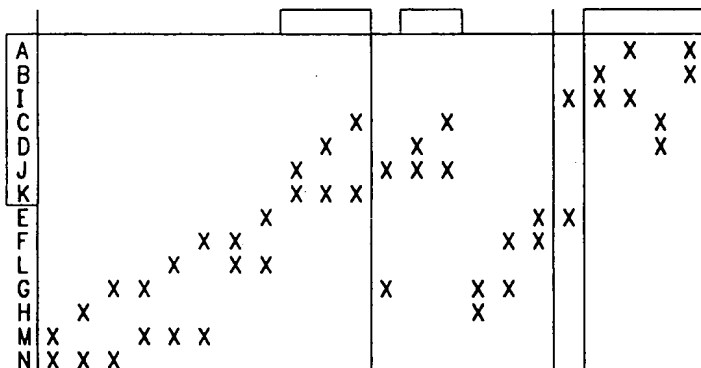


Replacement Sheet

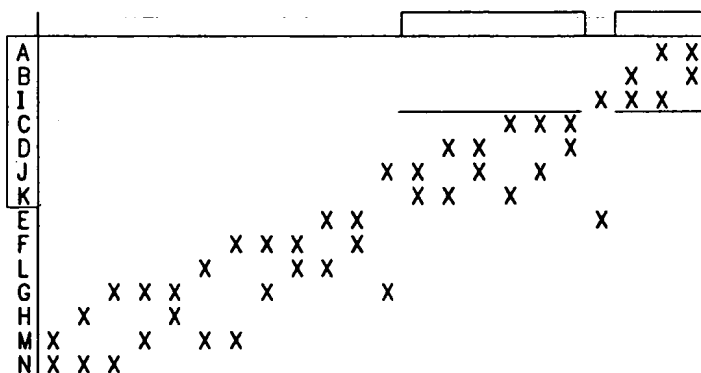
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Step 3, 4.



Step 5.



Step 6.

FIG. 18B



APPROVED	O.G. FIG.
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DRAFTSMAN	

Replacement Sheet

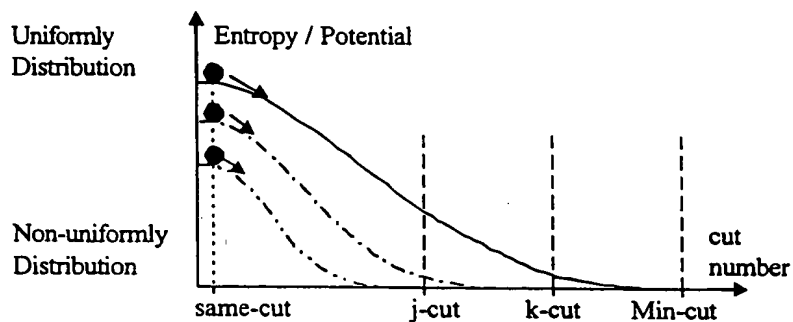


FIG. 20A

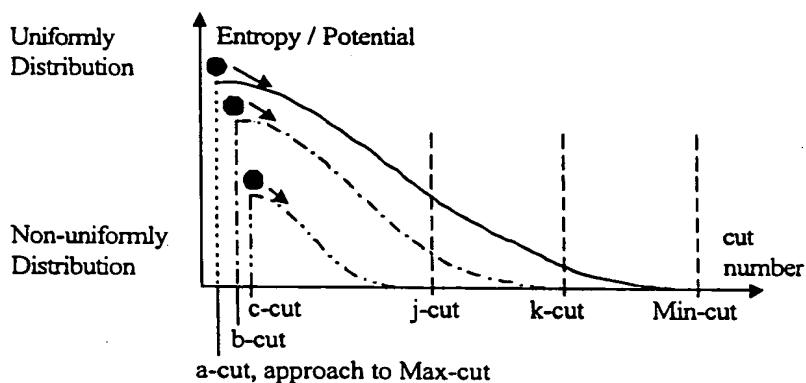


FIG. 20B

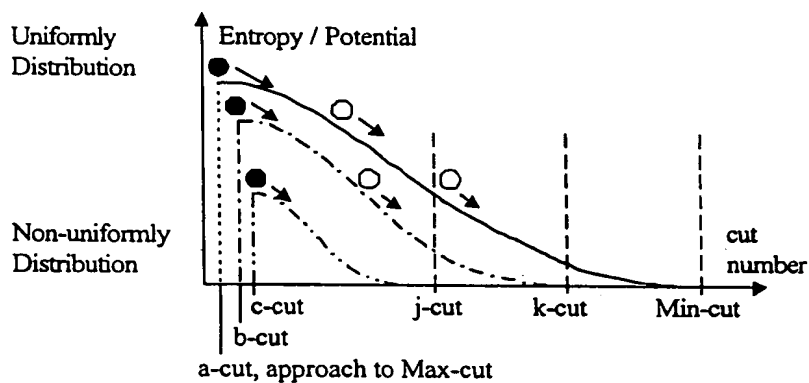


FIG. 20C